DELTA SCIENCE PLAN OUTLINE

EXECUTIVE SUMMARY

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     Uncoordinated mission-specific or single issue science efforts hinder efficient development of best available science to support adaptive management in the Delta. Many resource management decisions are made in courtrooms
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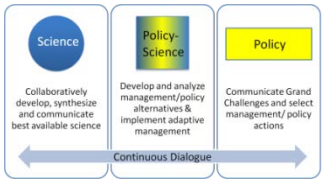
     Ensure policy, ongoing management actions and implementation of adaptive management is based on best science
   - 1.3. The Delta Science Plan – A recommendation of the Delta Stewardship Council, GR 1 of the Proposed Final Draft Delta Plan
   - 1.4. Transformation of the Science-Policy Interface to Support Adaptive Management



   - 1.5. Delta Science Plan Purpose
     - 1.5.1. Audiences and Uses of the Plan
     - 1.5.2. Expected Outcomes and Products

BOX 1 - Vision

One Delta, One Science

All Bay-Delta water and environmental policy is founded on the highest caliber science.

BOX 2 - The Delta

[Descriptions of the physical and biological Delta and the ecological and social importance of the Delta.]

BOX 3 - Guiding Principles for the Delta Science Plan

Independence. Science in the Delta must be viewed, in reality and perception, as independent. It should be objective, inclusive and transparent. It should be dedicated solely to discovery and communication of scientific information to inform the adaptive management of ecosystem restoration and water management.

Culture of excellence. All aspects of Delta science should support a culture of critical thinking, creativity, innovative ideas, and interdisciplinary team collaboration. Such a culture of science excellence naturally attracts talented investigators and technicians from diverse fields including ecology, geomorphology, water quality, hydrodynamics and the social sciences.

Advance the state of knowledge. Delta science should be judged on the basis of contributions to the knowledge base as indicated by quality, important, and relevant contributions to the peer-reviewed science literature.

Policy relevant. While upholding independence and science excellence, Delta science should maintain a clear focus on science relevant to supporting the coequal goals of water supply reliability and ecosystem restoration now and in the future.

Adhere to criteria for best available science. Delta science should be consistent with the Delta Plan criteria for best available science (adapted from criteria developed by the National Research Council): relevance, inclusiveness, objectivity, transparency and openness, timeliness, and peer review.

Interdisciplinary. Delta science initiatives should exemplify interdisciplinary collaboration addressing the web of physical drivers, process linkages, and geomorphic, chemical, and biological functions in the Delta. Effective science investigations should reflect similar web-of-science disciplines that collaborate for synergistic learning across traditional lines of expertise.

Targeted Research and Monitoring. Delta science includes traditional research, status and trends monitoring and process investigations of implemented management actions. All approaches apply the scientific method, including posing specific hypotheses, designing experiments, data acquisition and management, data analysis and synthesis. Conclusions from these investigations inform adaptive management decisions.

Bridging science and policy through communication. Delta science is committed to communication of policy and management relevant science by actively and effectively communicating scientific understanding supporting progress toward meeting the coequal goals.

2. **SCIENCE-POLICY INTERFACE**

An infrastructure for early engagement, continuous dialogue, and innovative approaches

2.1. Team Approach

A structure and mechanism for connecting Delta scientists and policy makers to enable clear communication of needs, opportunities and constraints

- Relationship among agencies, institutions, program and stakeholders
- Roles and responsibilities
- Capacity building

2.2. Grand Challenges

Process for identifying and communicating grand challenges and priority issues to focus and enhance collaborative research, anticipate future challenge and develop system understanding

2.3. Develop and analyze management/policy alternatives

3. **ORGANIZING SCIENCE**

Organize science to collaboratively develop, synthesize and communicate best available science

3.1. A collaborative institutional and organizational structure for conducting science in the Delta

- Relationship among agencies, institutions, program and stakeholders
- Roles and responsibilities
- Facilitate interdisciplinary science
- Engage with Policy
- Scientific oversight and review
- Capacity building

3.2. Integration and mechanisms for working together as one Delta science community

4. **SCIENCE TO INFORM ADAPTIVE MANAGEMENT**

How science works with policy to implement all steps of adaptive management

4.1. Plan

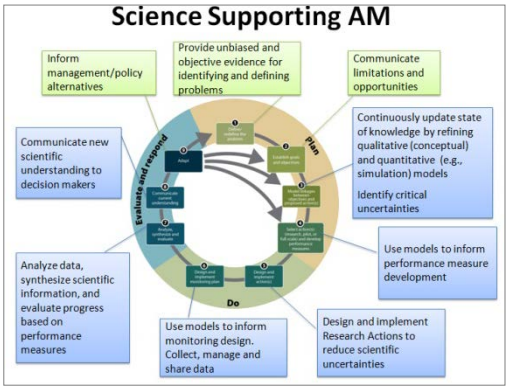
- *Anticipatory [3 planning horizons – Grand Challenge, Decadal, Immediate]*

4.2. Do

4.3. Evaluate and respond

4.4. Implementation guidance for adaptive management

- Scaling
- Knowledge base



5. **STRATEGIES AND APPROACHES FOR BUILDING BEST AVAILABLE SCIENCE**

Technological innovations and infrastructure for best available science collaboration and synthesis

5.1. Prioritizing research

Guidelines to prioritize research that addresses policy needs while balancing the need to continue to improve understanding of the Bay-Delta system over the long term.

5.2. Shared Models

Strategies to support multiple models through sharing data, algorithms, and the discussion of limitations. In doing so, facilitate community models for the future. Ensure transparency through structured model development, evaluations and training.

5.3. An Integrated Monitoring Approach

Recommendations for an integrated approach for monitoring: integrating local and regional monitoring, build on current initiatives and anticipating future efforts.

5.4. Data Management and Accessibility

Guidelines for developing tools for sharing and managing data, interoperability of data and modeling systems, data quality and accessibility, and data mining, simulation and visualization.

5.5. Analysis and Synthesis of Scientific Knowledge

Create teams and workgroups that synthesize the state of knowledge for the Delta including, tools, mechanisms for conducting activities, and building 'clusters of scientists'.

5.6. Independent Scientific Peer Review and Advice

Continue and expand the current process of independent scientific review in the Delta in order to develop unbiased and authoritative scientific knowledge upon which policy decisions can be made.

5.7. Communication Among Scientists

Guidelines for building a framework for sharing information among science entities.

6. **FUNDING DELTA SCIENCE**

6.1. Resources Needed

6.2. Current funding

6.3. Opportunities *[Multiple issues, multiple partnerships, multiple sources]*

7. **FUTURE OF DELTA SCIENCE**

Performance metrics, assessment and plan updates

KEY REFERENCES

ACKNOWLEDGEMENTS